Data Validation Checklist
Inorganic Analyses

Project:	35TH Avenue Superfund Site	Project No:	15268508.20000
Laboratory:	TestAmerica – Savannah, GA[1]	Job ID.:	680-85860-5
Method:	SW-846 6010B/C, 7471A, and 7196A; and EPA Methods 200.7 and 245.1	Associated Samples:	Refer to **Attachment A** (Sample Summary)
Matrix:	Soil and Surface water	Samples Collected:	12/14/2012
Reviewer:	Nicole Lancaster	Date:	02/04/2013
Concurrence[2]:	Martha Meyers-Lee	Date:	03/01/2013

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample preservation requirements met? If pH of aqueous sample >2 and was not adjusted by laboratory prior to analysis, J- flag positive results and R- flag non-detect results.			✓		
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil/sediment samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: ≤28 days, other metals: ≤6 months; Cr+6: ≤24 hours from extraction). If not, then J- flag positive results and R- flag non-detect aqueous results.		✓			
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?		✓		The MDL (0.59 mg/Kg) for arsenic is greater than the Resident Soil RSL (0.39 mg/Kg). A RSL does not exist for total chromium; however, the total chromium MDL (0.5 mg/Kg) is greater than the hexavalent chromium Resident Soil RSL (0.29 mg/Kg).	
8. Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, batch, matrix, and level)?	✓				
9. Was a calibration blank (ICB/CCB) analyzed at the beginning, after every 10th sample, and at the end of each analytical run?	✓				

[1] EPA 245.1, and 7471A analyses subcontracted to TestAmerica of Tampa, FL
[2] Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
10. Were target analytes detected in the method and/or calibration blanks?	✓			Target analytes were not detected in any method blank. A target analyte (i.e., arsenic) was detected at concentrations below the reporting limit during the EPA 200.7 analysis of calibration blanks.	
11. Were target analytes reported in equipment/rinsate blanks analyses above the DL?		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank (121112-RB-Bowls + Spoons (680-85731-47)) was collected for the week of December 10, 2012. Target analytes were not detected during the EPA Methods 200.7 and 245.1 analyses of rinsate blank 121112-RB-Bowls + Spoons (680-85731-47), which was collected on 12/11/12 and results reported under Job 680-85731-4. The rinsate blank was not analyzed for hexavalent chromium.	
12. Were contaminants detected in samples below the blank contamination action level? o If blank result > RL, • Flag sample results ≤ RL with a U • Flag positive sample results > RL and ≤10x blank result , as J+ positive results o If blank result ≤RL, • Flag sample results ≤ RL with a U • Flag positive sample results > RL and ≤10x blank result , as J+ positive results		✓		Qualification of data due to the presence of calibration blank contamination is not warranted, as all blank results were significantly less than that detected in samples.	
13. Are there negative laboratory blank results with the absolute value ≤RL? If yes, then flag positive and non-detect sample results that are < 10x absolute blank value as J- and UJ, respectively.		✓			
14. Was a field duplicate analyzed?		✓			
15. Was precision deemed acceptable as defined by the project plans?			✓		
16. Were initial and continuing calibration standards analyzed at the lab/project-specified frequency for each instrument? o 6010C: • ICAL: Blank and one standard • ICV initially, and CCV every 10th sample and at the end of the analytical run • Lower Limit of Quantitation Check Sample (CRI) to be analyzed after establishing lower laboratory reporting limits	✓			Soil: • 6010C: 12/21/12. One blank and one standard initially. ICV initially, and CCV every 10 samples and at end of run. CRI after initial calibration blank analysis. • 7471A: 12/19/12. 6-Point ICAL. ICV initially, CCV every 10 samples and at end of run. CRI	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
and as needed ○ 7471A: • ICAL: Blank and five standards • ICV initially, and CCV every 10th sample and at the end of the analytical run ○ 7196A: • ICAL: Blank and minimum of five standards • ICV initially, and CCV every 10th sample (15th per Method) and at the end of the analytical run				after initial calibration blank analysis. • 7196A: ○ 12/20/12. 7-Point ICAL ○ 12/20/12. ICV initially, CCV every 10 samples and at end of run Water: • 200.7: 12/19/12. One blank and one standard initially. ICV initially, and CCV every 10 samples and at end of run. CRI after initial calibration blank analysis. • 245.1: 12/18/12. 6-Point ICAL. ICV initially, CCV every 10 samples and at end of run. CRI after initial calibration blank analysis.	
17. Were these results within lab/project specifications? ○ 6010C • ICV/CCV (Criteria: 90-110%R): ▪ If %R <75, then J- flag positive results and R-flag non-detects ▪ If 75-89%R, then J- flag positive results and UJ flag non-detects ▪ If 111-125%R, then J flag positive results ▪ If >125%R, then J+ flag positive results ▪ If >160%R, then R flag positive results • CRI (Method: 70-130%R, Laboratory: 50-150%R; Project: 50-150%R for Sb, Pb, and Tl, and 70-130%R for all other analytes): ▪ If CRI %R <50 (<30% for Sb, Pb, TL), then R flag results ≤ 2x RL and J flag positive results >2x RL ▪ If CRI %R 50-69% (30-49% for Sb, Pb, TL), then J- and UJ flag positive results <2x RL and ND, respectively ▪ If CRI %R >130% and ≤180% (>150%, but ≤200% for Sb, Pb, TL), then J+ flag positive results <2x RL ▪ If CRI %R >180% (>200% for Sb, Pb, TL), then R flag positive results ○ 7471A • ICV/CCV (Criteria: 80-120%R): ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-79%R, then J- flag positive results and UJ flag non-detects	✓			• Mercury correlation coefficients (raw data): ICAL of 12/18/12, 0.99994 and 12/19/12, 0.99992 (pages 482 and 490, respectively). • Hexavalent chromium correlation coefficient (raw data): ICAL of 12/20/12, 0.999978 (page 539).	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
▪ If 121-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results • CRI (Method: Not required, Laboratory: 50-150%R, Project: 70-130%R): ▪ If CRI %R <50, then R flag results ≤ 2x RL and J flag positive results >2x RL ▪ If CRI %R 50-69%, then J- and UJ flag positive results <2x RL and ND, respectively ▪ If CRI %R >130% and ≤180%, then J+ flag positive results <2x RL ▪ If CRI %R >180%, then R flag positive result o 7196A: • ICV/CCV (Criteria: 90-110%R): ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-90%R, then J- flag positive results and UJ flag non-detects ▪ If 110-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results					
18. Was the interference check sample (ICS) analyzed at the beginning of each ICP analytical run?	✓				
19. Are ICS recoveries within 80-120% of the true value? If not, qualify data as follows when native Al, Fe, Ca, and Mg sample concentrations are equal to or greater than the ICS spiking level: o If >120%R (or >true value plus 2x CRQL), J+ flag positive results o If 50-79%R (or less than true value – 2x the CRQL), J- flag positive results and UJ flag non-detects o If <50%R, J- flag positive results and R-flag non-detects	✓				
20. Was a LCS analyzed for each preparation batch (one per 20 samples per matrix and level)?	✓				
21. Did LCS recoveries meet method/laboratory/project (80-120%R) specifications? o Soil: • LCS result > Upper control limit (UCL): J+ flag positive results • LCS result < Lower control limit (LCL): J- flag positive	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
results and UJ flag non-detects ○ Aqueous: • If <50%R, then J- and R flag positive and ND results, respectively • If 50-LCL%R, J- and UJ flag positive and ND results, respectively • >UCL: J+ Flag positive results • >150%R: R Flag results					
22. Was the RPD between LCS and LCSD results within method/laboratory /project control limits (≤20%RPD)? If not, J and UJ flag positive and non-detect results, respectively	✓			LCSD for 6010B only	
23. Was a Matrix Spike (MS) and Matrix Spike Duplicate (MSD) analyzed once per preparation batch?	✓				
24. Is the MS and MSD parent sample a project-specific sample?	✓	✓		Soil: • 6010C: ○ 680-85860-5 (CV0256C-CS), MS/MSD. ○ 680-85860-49 (CV0511UU-CS), MS/MSD. ○ 680-85860-63(CV0511TTT-GS), MS/MSD. • 7471A: ○ 680-85860-5 (CV0256C-CS), MS/MSD ○ 680-85860-49 (CV0511UU-CS), MS/MSD. ○ 680-85860-63(CV0511TTT-GS), MS/MSD. • 7196A: 680-85860-5 (CV0256C-CS), MS Water: • 200.7: 680-85867-1 (Batch sample) MS/MSD • 245.1: 680-85860-62 (CV0511SSS-SW), MS/MSD	
25. Was a post-digestion spike (PDS) analysis conducted when MS and/or MSD results did not meet control limits (Note: PDS is not required for silver, mercury, or hexavalent chromium)?		✓		Soil: • 6010C: 680-85860-5 (CV0256C-CS) • 7196A: 680-85860-5 (CV0256C-CS) Water: • 200.7: 680-85867-1 (Batch sample)	
26. For all analytes with sample concentration < 4 x spike concentration, are spike recoveries within method (6010C: 75-125%R MS/MSD and 80-120%R PDS; 7471A: 80-120%R MS/MSD; 7196A: 85-115%R MS), laboratory (MS, MSD, and PDS: 75-125%R for 6010C/7471 (as applicable) and 80-120%R for 7196), and project (as noted below) specifications? *Only QC results for project samples are evaluated.*		✓		• CV0256C-CS (680-85860-5): ○ 6010C: ▪ Barium @ -185 and -195%R (75-125). Native sample concentration >4 x spike concentration; therefore, evaluation of interference based on MS/MSD results is not possible. PDS recovery met control limits.	J, UJ

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
If not, ○ 6010C: • If MS %R <30 and PDS %R <75, then J- and R Flag positive and ND results, respectively • If MS %R <30 and PDS %R >75, then J flag positive and UJ flag non-detect results • If MS and MSD %R 30-74 and PDS%R <75, then J- flag positive and UJ flag non-detect results • If MS and MSD %R 30-74 and PDS%R ≥75, then J flag positive and UJ flag non-detect results • If MS, MSD, and PDS %R >125, J+ flag positive results • If MS and MSD %R >125 and PDS %R ≤125, then J flag positive results • If MS and MSD %R <30 and no PDS, then J- flag positive and R-flag non-detect results • If MS and MSD %R 30-74 and no PDS, then J- and UJ flag positive and non-detect results, respectively • If MS and MSD %R >125 and no PDS, then J+ flag positive results ○ 7471A/7196: • If MS %R <30, then J- and R Flag positive and ND results, respectively • If MS and MSD %R 30-LCL, then J- flag positive and UJ flag non-detect results • If MS and MSD %R >UCL, then J+ flag positive results				▪ Lead @ -1712 and -2042%R (75-125). Native sample concentration >4 x spike concentration; therefore, evaluation of interference based on MS/MSD results is not possible. PDS recovery met control limits. ○ 7196A, Hexavalent Chromium @ 0.03%R (80-120). Recovery of PDS fell within control limits. MS percent recovery <30% and PDS is 85%; therefore, the non-detect result for CV0256C-CS is UJ-flagged • CV0511UU-CS (680-85860-49), 6010C (*Note: PDS analysis not conducted*): ○ Barium @ 119 and 140%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. ○ Chromium @ 58 and 46%R (75-125). J-Flag, because a low recovery is indicative of a negative bias. ○ Lead @ 119 and 148%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. • CV0511TTT-GS (680-85860-63), 6010C (*Note: PDS analysis not conducted)*: ○ Arsenic @ 8 and -126%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. ○ Barium @ -831 and -1636%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. ○ Cadmium @ 74 and 51%R (75-125). J-flag, because a low recovery is indicative of a negative bias. ○ Chromium @ -78 and -252%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
				is not warranted. ○ Lead @ -0.3 and -98%R (75-125). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted.	
27. Were laboratory/project (≤20%RPD) criteria met for precision during the MS and MSD analysis? *Only QC results for project samples are evaluated.* ○ If RPD >20%, J and UJ flag positive and non-detect results.		✓		• CV0511TTT-GS (680-85860-63), 6010C (*Note: PDS analysis not conducted*): ○ Arsenic @ 34%RPD (≤20). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. ○ Barium @ 50%RPD (≤20). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted. ○ Chromium @ 25%RPD (≤20). Native sample concentration >4 x spike concentration; therefore, qualification of data is not warranted.	
28. Was a serial dilution conducted for 6010/EPA 200.7?	✓			Soil: • 6010C: 680-85860-5 (CV0256C-CS) • 7471A: 680-85860-5 (CV0256C-CS) Water: • 200.7: 680-85867-1 (Batch sample) • 245.1: 680-85860-5 (CV0256C-CS)	
29. Is the serial dilution parent sample a project-specific sample?	✓	✓			
30. Is the percent difference between the serially diluted result and undiluted result less 10% (for those analytes with native concentrations greater than 50x the DL)? *Only QC results for project samples are evaluated.* ○ If %D >10, J and UJ flag positive and non-detect results, respectively.	✓				
31. Was a laboratory duplicate analyzed?	✓			7196A: 680-85731-21 (Batch sample). Lab sample 680-85731-21 is a project-specific sample (CV0570B-CS) that was selected by TestAmerica for the hexavalent chromium laboratory duplicate analysis, and the native sample results were reported under TestAmerica Job ID 680-85731-4.	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
32. Was the lab duplicate analysis conducted on a project-specific sample?		✓			
33. Were criteria for laboratory/project precision met? *Only QC results for project samples are evaluated.* o If RPD values >20% (35% for soil/sediment) or absolute difference > RL (2x RL for soil/sediment), then J and UJ flag positive and non-detect results, respectively			✓		
34. Were lab comments included in report? If yes, summarize contents or attach a copy of the narrative.	✓			Refer to **Attachment B** (Case Narrative)	

Comments: The data validation was conducted in accordance with the *Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1* (OTIE, October 2012). The data review process was modeled after the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Inorganic Data Review* (EPA 540-R-04-004, October 2004). Sample results have been qualified based on the results of the data review process (**Attachment C**). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment

DV Flag Definitions:

J- The result is an estimated quantity, but the result may be biased low.
J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+ The result is an estimated quantity, but the result may be biased high.
R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
UJ The analyte was analyzed for, but was not detected. The reported limit is approximate and may be inaccurate or imprecise.

ATTACHMENT A

SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-85860-5
Sdg Number: 68085860-5

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-85860-1	FM0199A-CS-SP	Solid	12/13/2012 1100	12/15/2012 1003
680-85860-5	CV0256C-CS	Solid	12/13/2012 0945	12/15/2012 1003
680-85860-5MS	CV0256C-CS	Solid	12/13/2012 0945	12/15/2012 1003
680-85860-5MSD	CV0256C-CS	Solid	12/13/2012 0945	12/15/2012 1003
680-85860-7	CV0256E-GS	Solid	12/13/2012 0950	12/15/2012 1003
680-85860-49	CV0511UU-CS	Solid	12/13/2012 1030	12/15/2012 1003
680-85860-49MS	CV0511UU-CS	Solid	12/13/2012 1030	12/15/2012 1003
680-85860-49MSD	CV0511UU-CS	Solid	12/13/2012 1030	12/15/2012 1003
680-85860-55	CV0621A-CS	Solid	12/13/2012 1350	12/15/2012 1003
680-85860-57	CV0621C-CS	Solid	12/13/2012 1340	12/15/2012 1003
680-85860-62	CV0511SSS-SW	Water	12/13/2012 1540	12/17/2012 0924
680-85860-63	CV0511TTT-GS	Solid	12/13/2012 1540	12/17/2012 0924
680-85860-63MS	CV0511TTT-GS	Solid	12/13/2012 1540	12/17/2012 0924
680-85860-63MSD	CV0511TTT-GS	Solid	12/13/2012 1540	12/17/2012 0924
680-85860-64	CV0256C-CS (SIEVE)	Solid	12/13/2012 0945	12/17/2012 0924
680-85860-65	CV0621C-CS (SIEVE)	Solid	12/13/2012 1340	12/17/2012 0924
680-85860-66	CV0511UU-CS (SIEVE)	Solid	12/13/2012 1030	12/17/2012 0924
680-85860-67	FM0199A-CS-SP (SIEVE)	Solid	12/13/2012 1100	12/17/2012 0924
680-85860-68	CV0256E-GS (SIEVE)	Solid	12/13/2012 0950	12/17/2012 0924
680-85860-69	CV0621A-CS (SIEVE)	Solid	12/13/2012 1350	12/17/2012 0924
680-85860-73	FM0251B-CS	Solid	12/14/2012 1000	12/17/2012 0924
680-85860-79	FM0251B-CS (SIEVE)	Solid	12/14/2012 1751	12/17/2012 0924

ATTACHMENT B

CASE NARRATIVE

Job ID: 680-85860-5

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Oneida Total Integrated Enterprises LLC

Project: 35th Avenue Superfund Site

Report Number: 680-85860-5

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/15/2012 and 12/17/2012; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.6º C, 4.2º C and 5.6º C.

METALS (ICP)
Sample CV0511SSS-SW (680-85860-62) was analyzed for Metals (ICP) in accordance with EPA Method 200.7. The samples were prepared on 12/18/2012 and analyzed on 12/20/2012.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY
Sample CV0511SSS-SW (680-85860-62) was analyzed for total mercury in accordance with EPA Method 245.1. The samples were prepared and analyzed on 12/18/2012.

No difficulties were encountered during the mercury analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)
Samples FM0199A-CS-SP (680-85860-1), CV0256C-CS (680-85860-5), CV0256E-GS (680-85860-7), CV0511UU-CS (680-85860-49), CV0621A-CS (680-85860-55), CV0621C-CS (680-85860-57), CV0511TTT-GS (680-85860-63), CV0256C-CS (SIEVE) (680-85860-64), CV0621C-CS (SIEVE) (680-85860-65), CV0511UU-CS (SIEVE) (680-85860-66), FM0199A-CS-SP (SIEVE) (680-85860-67), CV0256E-GS (SIEVE) (680-85860-68), CV0621A-CS (SIEVE) (680-85860-69), FM0251B-CS (680-85860-73) and FM0251B-CS (SIEVE) (680-85860-79) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/18/2012 and analyzed on 12/22/2012.

Several analytes recovered outside the recovery criteria low for the MS/MSD of sample CV0511UU-CS (680-85860-49) in batch 680-260777.

Barium and Lead recovered outside the recovery criteria for the MS/MSD of sample CV0256C-CS (680-85860-5) in batch 680-260777.

Several analytes failed the recovery criteria low for the MS/MSD of sample CV0511TTT-GS (680-85860-63) in batch 680-260777. Arsenic,

Job ID: 680-85860-5 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Barium and Chromium exceeded the rpd limit.

Refer to the QC report for details.

TOTAL MERCURY

Samples CV0256C-CS (680-85860-5), CV0256E-GS (680-85860-7), CV0511UU-CS (680-85860-49), CV0621A-CS (680-85860-55), CV0621C-CS (680-85860-57), CV0511TTT-GS (680-85860-63), CV0256C-CS (SIEVE) (680-85860-64), CV0621C-CS (SIEVE) (680-85860-65), CV0511UU-CS (SIEVE) (680-85860-66), FM0199A-CS-SP (SIEVE) (680-85860-67), CV0256E-GS (SIEVE) (680-85860-68), CV0621A-CS (SIEVE) (680-85860-69), FM0251B-CS (680-85860-73) and FM0251B-CS (SIEVE) (680-85860-79) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 12/19/2012.

No difficulties were encountered during the mercury analyses.

All quality control parameters were within the acceptance limits.

HEXAVALENT CHROMIUM

Samples CV0256C-CS (680-85860-5), CV0256C-CS (SIEVE) (680-85860-64) and FM0251B-CS (680-85860-73) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 3060A/7196A. The samples were prepared on 12/19/2012 and analyzed on 12/20/2012.

Sample CV0256C-CS (680-85860-5)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Chromium, hexavalent recovered outside the recovery criteria for the MS of sample CV0256C-CSMS (680-85860-5) in batch 680-260599.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

ATTACHMENT C

QUALIFIED SAMPLE RESULTS

Client Sample ID: FM0199A-CS-SP

Lab Sample ID: 680-85860-1
Date Collected: 12/13/12 11:00
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 74.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21		2.5	0.75	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Barium	140		1.3	0.38	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Cadmium	1.4		0.63	0.13	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Chromium	23		1.3	0.63	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Lead	190		1.3	0.67	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Selenium	1.7	J	3.2	1.3	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1
Silver	1.3	U	1.3	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 04:33	1

Client Sample ID: CV0256C-CS

Lab Sample ID: 680-85860-5
Date Collected: 12/13/12 09:45
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 78.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	29		2.5	0.73	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Barium	220		1.2	0.37	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Cadmium	2.1		0.62	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Chromium	38		1.2	0.62	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Lead	240		1.2	0.65	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Selenium	2.0	J	3.1	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1
Silver	1.2	U	1.2	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 04:39	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.16		0.030	0.012	mg/Kg	☼	12/19/12 10:03	12/19/12 11:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	12	U J	12	3.5	mg/Kg	☼	12/19/12 15:14	12/20/12 17:01	10

Client Sample ID: CV0256E-GS

Lab Sample ID: 680-85860-7
Date Collected: 12/13/12 09:50
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 76.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	87		2.5	0.74	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Barium	480		1.3	0.38	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Cadmium	3.7		0.63	0.13	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Chromium	34		1.3	0.63	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Lead	220		1.3	0.67	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Selenium	3.7		3.2	1.3	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1
Silver	0.17	J	1.3	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 05:24	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.25		0.033	0.013	mg/Kg	☼	12/19/12 10:03	12/19/12 11:47	1

Client Sample ID: CV0511UU-CS

Lab Sample ID: 680-85860-49
Date Collected: 12/13/12 10:30
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 83.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.1		2.4	0.70	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Barium	53		1.2	0.36	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Cadmium	0.76		0.59	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Chromium	26	J	1.2	0.59	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Lead	47		1.2	0.63	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Selenium	3.0	U	3.0	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1
Silver	1.2	U	1.2	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 05:31	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.090		0.035	0.014	mg/Kg	☼	12/19/12 10:03	12/19/12 12:19	1

Client Sample ID: CV0621A-CS

Lab Sample ID: 680-85860-55
Date Collected: 12/13/12 13:50
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 78.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		2.3	0.68	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Barium	110		1.2	0.35	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Cadmium	1.4		0.58	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Chromium	36		1.2	0.58	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Lead	150		1.2	0.61	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Selenium	1.6	J	2.9	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1
Silver	1.2	U	1.2	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 05:50	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.18		0.035	0.014	mg/Kg	☼	12/19/12 10:03	12/19/12 11:49	1

Client Sample ID: CV0621C-CS

Lab Sample ID: 680-85860-57
Date Collected: 12/13/12 13:40
Matrix: Solid
Date Received: 12/15/12 10:03
Percent Solids: 77.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		2.2	0.66	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Barium	270		1.1	0.33	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Cadmium	3.7		0.56	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Chromium	54		1.1	0.56	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Lead	190		1.1	0.59	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Selenium	2.2	J	2.8	1.1	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1
Silver	0.19	J	1.1	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 05:57	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.23		0.031	0.012	mg/Kg	☼	12/19/12 10:03	12/19/12 11:51	1

Client Sample ID: CV0511SSS-SW

Lab Sample ID: 680-85860-62
Date Collected: 12/13/12 15:40
Matrix: Water
Date Received: 12/17/12 09:24

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	20	U	20	4.6	ug/L		12/18/12 16:17	12/20/12 03:07	1
Barium	**41**		10	2.3	ug/L		12/18/12 16:17	12/20/12 03:07	1
Cadmium	5.0	U	5.0	2.0	ug/L		12/18/12 16:17	12/20/12 03:07	1
Chromium	**3.1**	**J**	10	1.2	ug/L		12/18/12 16:17	12/20/12 03:07	1
Lead	**7.0**	**J**	10	4.0	ug/L		12/18/12 16:17	12/20/12 03:07	1
Selenium	20	U	20	6.4	ug/L		12/18/12 16:17	12/20/12 03:07	1
Silver	10	U	10	0.89	ug/L		12/18/12 16:17	12/20/12 03:07	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.20	U	0.20	0.072	ug/L		12/18/12 12:51	12/18/12 14:12	1

Client Sample ID: CV0511TTT-GS

Lab Sample ID: 680-85860-63
Date Collected: 12/13/12 15:40
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 75.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**55**		2.4	0.69	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Barium	**330**		1.2	0.35	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Cadmium	**4.8**	**J**	0.59	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Chromium	**100**		1.2	0.59	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Lead	**79**		1.2	0.62	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Selenium	**4.2**		2.9	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1
Silver	1.2	U	1.2	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 06:03	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.071**		0.030	0.012	mg/Kg	☼	12/19/12 10:03	12/19/12 12:29	1

Client Sample ID: CV0256C-CS (SIEVE)

Lab Sample ID: 680-85860-64
Date Collected: 12/13/12 09:45
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 78.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**19**		2.4	0.71	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Barium	**130**		1.2	0.36	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Cadmium	**1.6**		0.60	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Chromium	**29**		1.2	0.60	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Lead	**120**		1.2	0.64	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Selenium	**1.8**	**J**	3.0	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1
Silver	**0.28**	**J**	1.2	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:36	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.15**		0.034	0.013	mg/Kg	☼	12/19/12 10:03	12/19/12 11:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	1.2	U	1.2	0.37	mg/Kg	☼	12/19/12 15:14	12/20/12 16:25	1

Client Sample ID: CV0621C-CS (SIEVE)

Lab Sample ID: 680-85860-65

Date Collected: 12/13/12 13:40
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 76.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	15		2.4	0.70	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Barium	200		1.2	0.36	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Cadmium	2.7		0.60	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Chromium	34		1.2	0.60	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Lead	170		1.2	0.63	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Selenium	2.2	J	3.0	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1
Silver	2.7		1.2	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 06:42	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.26		0.037	0.015	mg/Kg	☼	12/19/12 10:03	12/19/12 11:58	1

Client Sample ID: CV0511UU-CS (SIEVE)

Lab Sample ID: 680-85860-66

Date Collected: 12/13/12 10:30
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 82.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.8		2.4	0.72	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Barium	39		1.2	0.36	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Cadmium	0.57	J	0.61	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Chromium	17		1.2	0.61	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Lead	40		1.2	0.64	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Selenium	3.0	U	3.0	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1
Silver	1.2	U	1.2	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:49	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.069		0.034	0.014	mg/Kg	☼	12/19/12 10:03	12/19/12 11:59	1

Client Sample ID: FM0199A-CS-SP (SIEVE)

Lab Sample ID: 680-85860-67

Date Collected: 12/13/12 11:00
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 76.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	18		2.3	0.69	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Barium	100		1.2	0.35	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Cadmium	1.1		0.59	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Chromium	23		1.2	0.59	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Lead	150		1.2	0.62	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Selenium	2.0	J	2.9	1.2	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1
Silver	1.2	U	1.2	0.11	mg/Kg	☼	12/18/12 15:10	12/22/12 06:55	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.11		0.038	0.015	mg/Kg	☼	12/19/12 10:03	12/19/12 12:01	1

Client Sample ID: CV0256E-GS (SIEVE)

Lab Sample ID: 680-85860-68
Date Collected: 12/13/12 09:50
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 74.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	62		2.5	0.74	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Barium	230		1.3	0.38	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Cadmium	3.0		0.63	0.13	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Chromium	24		1.3	0.63	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Lead	190		1.3	0.67	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Selenium	3.1		3.1	1.3	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1
Silver	0.25	J	1.3	0.12	mg/Kg	☼	12/18/12 15:10	12/22/12 07:02	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.33		0.039	0.016	mg/Kg	☼	12/19/12 10:03	12/19/12 12:12	1

Client Sample ID: CV0621A-CS (SIEVE)

Lab Sample ID: 680-85860-69
Date Collected: 12/13/12 13:50
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 79.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.7		2.5	0.72	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Barium	84		1.2	0.37	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Cadmium	1.0		0.61	0.12	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Chromium	22		1.2	0.61	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Lead	81		1.2	0.65	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Selenium	1.7	J	3.1	1.2	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1
Silver	1.2	U	1.2	0.12	mg/Kg	☼	12/18/12 15:11	12/22/12 07:08	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.15		0.037	0.015	mg/Kg	☼	12/19/12 10:03	12/19/12 12:14	1

Client Sample ID: FM0251B-CS

Lab Sample ID: 680-85860-73
Date Collected: 12/14/12 10:00
Matrix: Solid
Date Received: 12/17/12 09:24
Percent Solids: 68.5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	16		2.6	0.76	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Barium	300		1.3	0.39	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Cadmium	7.8		0.65	0.13	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Chromium	37		1.3	0.65	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Lead	420		1.3	0.68	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Selenium	2.3	J	3.2	1.3	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1
Silver	1.2	J	1.3	0.12	mg/Kg	☼	12/18/12 15:11	12/22/12 07:15	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.39		0.042	0.017	mg/Kg	☼	12/19/12 10:03	12/19/12 12:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	1.4	U	1.4	0.43	mg/Kg	☼	12/19/12 15:14	12/20/12 16:25	1

Client: Oneida Total Integrated Enterprises LLC
Project/Site: 35th Avenue Superfund Site

TestAmerica Job ID: 680-85860-5
SDG: 68085860-5

Client Sample ID: FM0251B-CS (SIEVE)
Date Collected: 12/14/12 17:51
Date Received: 12/17/12 09:24

Lab Sample ID: 680-85860-79
Matrix: Solid
Percent Solids: 68.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	14		2.7	0.81	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Barium	370		1.4	0.41	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Cadmium	8.0		0.68	0.14	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Chromium	31		1.4	0.68	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Lead	440		1.4	0.73	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Selenium	1.8	J	3.4	1.4	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1
Silver	0.94	J	1.4	0.13	mg/Kg	☼	12/18/12 15:11	12/22/12 07:21	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.38		0.041	0.016	mg/Kg	☼	12/19/12 10:03	12/19/12 12:17	1